

## CHAIR MASSAGER

By

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### BACKGROUND OF THE INVENTION

The invention relates generally to a massaging device. More particularly, the present invention relates to an improved chair massager capable of efficiently treating bodily malfunctions such as back pain and  
10 gastrointestinal weakness by applying a therapeutic massaging treatment along the back and neck of a patient resting on the massager whose massaging bumps are to massage along the patient's spinal cord and neck in a double reciprocation mode.

15 Conventional massaging chairs adopting spinal massaging mechanism are disclosed to employ a vertical or lengthwise reciprocation and massage balls attached to a mounting member that allows the massage balls to make the vertical reciprocation along a user's back and neck. A  
20 disadvantage of such conventional arts is an optimal combination of the lengthwise reciprocation and the pushing momentum of the massage balls toward the user's back. Such pushing momentum needs to be optimally controlled depending on individuals using a chair type  
25 massager.

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For example, a slim woman with a back pain may require a stronger pushing momentum than normal and at the same time more easily feels pain as the massage balls apply to the back with the required strong momentum. A demand on the market is to apply controllability to pushing mechanism of the massage balls to demonstrate a steady and robust therapeutic effects while harmonizing the lengthwise reciprocation with the pushing momentum of the massage balls toward the user's back and neck.

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#### **SUMMARY OF THE INVENTION**

The present invention is contrived to overcome the conventional disadvantages. Accordingly, an object of the invention is to provide a chair massager employing a therapeutic massaging mechanism. Another object is to employ a gear mechanism for a forwardly pushing of massage bumps to maximize combinational effects with a vertical or lengthwise reciprocation of massage bumps.

A further object is to improve product reliability and customer satisfaction by reliably synthesizing the lengthwise and a forward reciprocations of the massage bumps.

To achieve these and other objects, the chair massager according to the present invention comprises a base, a back support to place a user's back and neck

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thereon when the user is seated in the base. The back support has a cover, first and second ends of which the first end is fixed to the base. A rider makes a lengthwise reciprocal movement between the first and  
5 second ends of the back support, and a lifter is liftedly engaged to the rider so that the lifter makes a forward reciprocal movement perpendicular to the lengthwise reciprocal movement of the rider.

In this construction, massage bumps veiled by the  
10 cover and attached atop the lifter are provided to massage along the user's back and neck in accordance with the relative movements of the rider and lifter. The lifter comprises a roller gear engaged to and powered by a first motor where the first motor is fixed to the rider,  
15 a bump support having a top portion and a bottom portion where the massage bumps are mounted on the top portion, and an engagement body downwardly extending from a bottom portion of the bump support where a lower portion of the engagement body is releasably inserted in and fittingly  
20 supported by the rider. Here, an opening is formed through the engagement body to define inner walls, and one of the inner walls is configured to a rack gear so that the first roller gear is rollably engaged to the rack gear, whereby the roller gear rotation by the first

motor enables the lifter to make the forward reciprocal movement.

Alternately, the lifter may include a bump support having a top portion and a bottom portion where the  
5 massge bumps are mounted on the top portion, and a gear unit including a bolt gear downwardly extending from the bottom portion of the bump support, an elongated nut type gear having a circular outer periphery, a first gear incorporated on and along the circular outer periphery,  
10 and a second gear engaged to the first gear and connected to a first motor attached to the rider. The bolt gear is releasably engaged in the nut type gear whose bottom end is rotatably attached to and supported by the rider, whereby the second gear rotation generates the first gear  
15 rotation and the subsequent rotation of the nut type gear enables the lifter to make the forward reciprocal movement in accordance with the releasable engagement of the bolt gear and the nut type gear.

In a preferred version, a pair of pulleys are linked  
20 by a rope and respectively mounted in the first and second ends of the back support, and a predetermined portion of the rope is fixedly attached to the rider so that the pulley rotation enables the rider to generate the lengthwise reciprocal movement. Also, guide rails are  
25 provided substantially parallel to the rope and between

the first and second ends of the back support, and guide rollers attached to the rider are rollably fit in the guide rails to facilitate the lengthwise reciprocation of the rider.

5        For a better performance, a threaded shaft geared through the nut and rotatably engaged at the first and second ends of the back support to generate the lengthwise reciprocal movement of the rider where the rider has at least one nut fixed thereto. The massage  
10       bumps are partitioned to first and second pairs so that each pair bumps are aligned parallel to the direction of the rider reciprocation. Further, first and second bump holders propping and maintaining the first and second pair bumps, and the first and second bump holders are  
15       tapered toward each lower end thereof. A first engagement member is provided to rockingly engage the lower ends of the bump holders to the top portion of the lifter, and a second engagement member is provided to rollingly engage the massage bumps thereto. The massage bumps each include  
20       a heater and the heater is preferably a heating lamp generating heat and infrared rays. And, at least one of the massage bumps is fixed to the lifter and shaped in hemisphere.

Advantages of the present inventions are numerous.  
25       Most of all, the chair massager according to the present

invention optimally combines a lengthwise reciprocation of massage bumps with a forwardly reciprocal movement for thereby maximizing massaging effects on the back and neck of a patient resting on the massager.

5       Further, the combination of the double reciprocations results in a conspicuous therapeutic effects by realizing a virtually total back massaging while resting on the massager. Also, the massager maximally synthesizes multiple reciprocations in the  
10 movement of the massage bumps in a therapeutic format, thereby enhancing product reliability and customer satisfaction.

Although the present invention is briefly summarized, the full understanding of the invention can be obtained  
15 by the following drawings, detailed description and appended claims.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

These and other features, aspects and advantages of  
20 the present invention will become better understood with reference to the accompanying drawings, wherein:

FIG. 1 is a construction view showing a chair massager according to the present invention;

FIG. 2 is a perspective view showing reciprocation  
25 mechanism of massage bumps in FIG. 1;

FIG. 3 is a perspective view showing a mechanism of forward reciprocation of the massage bumps in FIG. 1;

FIGS. 4A-4D are views showing forward reciprocations implemented in the present invention;

5        FIGS. 5A and 5B are views showing forward reciprocations in another embodiment of the present invention; and

FIG. 6 is a construction view showing a further embodiment of the present invention.

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#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

FIG. 1 shows a brief construction of a chair massager **10** according to a preferred embodiment of the present invention. FIG. 2 shows a mechanism of a  
15    lengthwise reciprocation and a forwardly reciprocal movement of massage bumps **12**, and FIG. 3 shows a detailed mechanism of the forwardly reciprocal movement. As shown therein, the chair massager **10** includes a base **14** and a back support **16** to place a user's back and neck thereon  
20    when the user is seated in the base. The base **14** includes a base cushion **18** and a lower support **20**.

The back support **16** has a cover **22**, first and second ends **24**, **26**. The first end **24** is fixed to the base **14**. Specifically, the first end **24** serving as a lower end of  
25    the back support **16** is controllably connected to a rear

portion **15** of the base **14**. In this construction, a rider **28** is provided within the back support **16** to make a lengthwise reciprocal movement **X** between the first and second ends **24, 26** of the back support **16**. In a preferred embodiment, a pair of pulleys **30, 32** powered by a pulley motor **33** are linked by a rope **34** and respectively mounted in the first and second ends **24, 26** of the back support **16**. Here, a predetermined portion **36** of the rope **34** is fixedly attached to the rider **28** so that the pulley rotation enables the rider **28** to generate the lengthwise reciprocal movement **X**. In order to stabilize the lengthwise reciprocation **X** of the rider **28** it is recommended that the rider **28** reserves a hole **38** to receive the rope **34**.

To further stabilize the lengthwise reciprocal movement **X** of the rider **28** in the pulley mechanism, the massager **10** includes guide rails **40** provided substantially parallel to the rope **34** and between the first and second ends **24, 26** of the back support **16**, and guide rollers **42** attached to the rider **28**. Here, the guide rollers **42** are rollably fit in the guide rails **42** to facilitate the lengthwise reciprocation **X** of the rider **28**. Specifically, the guide rollers **42** are housed within a side recess **44** formed along the guide rails **42**.



A lifter **46** is liftedly engaged to the rider **28** so that the lifter **46** makes a forward reciprocal movement **Y** perpendicular to the lengthwise reciprocal movement **X** of the rider **28**. The lifter **46** comprises a roller gear **48**  
5 engaged to and powered by a first motor **50** fixed to the rider **28**, a bump support **52** having a top portion **54** and a bottom portion **56** where the massage bumps **12** are mounted on the top portion **54**, and an engagement body **58** downwardly extending from a bottom portion **56** of the bump  
10 support **52**.

As shown in FIGS. 4A-4D, a lower portion **60** of the engagement body **58** is releasably inserted in and fittingly supported by the rider **28**, and an opening **60** is formed through the engagement body **58** to define inner  
15 walls **64**. One of the inner walls **64** is configured to a rack gear **66** so that the first roller gear **48** is rollably engaged to the rack gear **66**, whereby the roller gear rotation by the first motor **50** enables the lifter **46** to make the forward reciprocal movement **Y** perpendicular to  
20 the lengthwise reciprocation **X** of the rider **28**. That is, when the roller gear **48** engaged to the rack gear **66** of the engagement body **58** makes a clockwise rotation, the bump support **52** becomes lowered accordingly and the massage bumps **12** also becomes lowered subsequently.  
25 Whereas, a counterclockwise rotation of the roller gear

48 serves to raise the bump support 54 and subsequently the massage bumps 12 become raised. Accordingly, when the user rests on the massager 10 with the back on the back support 16, the massage bumps 12 controllably apply to  
5 the back and neck of the user for massaging effects. Here, the pushing momentum of the massage bumps 12 toward the user's back and neck is adjustable by controlling the motor 50.

As further shown in FIGS. 5A and 5B, the lifter 46  
10 implemented in an alternate mode includes a gear unit 70 including a bolt gear 72 downwardly extending from the bottom portion 56 of the bump support 52, an elongated nut type gear 74 having a circular outer periphery 76, a first gear 78 incorporated on and along the circular  
15 outer periphery 76, and a second gear 80 engaged to the first gear 78 and connected to a first motor 82 attached to the rider 28. In this construction, the bolt gear 72 is releasably engaged in the nut type gear 74 whose bottom end 84 is rotatably attached to and supported by  
20 the rider 28, whereby the second gear 80 rotation generates the first gear 78 rotation and the subsequent rotation of the nut type gear 74 enables the lifter 46 to make the forward reciprocal movement Y in accordance with the releasable engagement of the bolt gear 72 and the nut  
25 type gear 74.

FIG. 6 shows another embodiment of the chair massager **10** where a threaded shaft **86** is employed for the lengthwise reciprocation **X** of the rider **28**. In this construction, the rider **28** is preferably provided with at least one nut **88** fixed thereto so that the threaded shaft **86** is geared through the nut **88** and rotatably engaged at the first and second ends **24,26** of the back support **16** to generate the lengthwise reciprocal movement **X** of the rider **28** therealong.

Such double reciprocation mechanism **X**, **Y** upgrades therapeutic massaging effects of the massage bumps **12** to the user's back and neck. The massage bumps **12** are veiled by the cover **22** and attached atop the lifter **46** to massage along the user's back and neck in accordance with the relative movements of the rider **28** and lifter **46**. Preferably, the massage bumps **12** are partitioned to first and second pairs so that each pair bumps are aligned parallel to the direction of the rider reciprocation **X**.

The first and second bump holders **90, 92** are provided to prop and maintain the first and second pair bumps, and the first and second bump holders **90, 92** are tapered toward each lower end **91, 93** thereof. A first engagement member **94** serves to rockingly engage the lower ends **91, 93** of the bump holders **90, 92** to the top portion **54** of the lifter **46**. A second engagement member **98** serves

to rollingly engage the massage bumps **12** thereto. At least one **100** of the massage bumps **12** is fixed to the lifter **46** without being hooked by a bump holder and shaped in hemisphere. When the bumps **12** are aligned  
5 parallel to each other by the bump holders **90, 92** the fixed bump **100** is centered among the bumps **12**. The massage bumps **12** each include a heater **102**, and the heater **102** is preferably a heating lamp generating heat and infrared rays. The massage bumps **12** may be shaped in  
10 a substantially spherical format.

As discussed above, an advantage of the present inventions is that the chair massager **10** optimally combines the lengthwise reciprocation **X** of massage bumps **12** with a forwardly reciprocal movement **Y** to maximize  
15 massaging effects on the back and neck of a patient resting on the massager **10**. Further, the combination of the double reciprocations **X, Y** results in a conspicuous therapeutic effects by realizing a virtually total back massaging while resting on the massager **10**. Also, the  
20 massager maximally synthesizes multiple reciprocations for the movement of the massage bumps in a therapeutic format, thereby enhancing product reliability and customer satisfaction.

Although the invention has been described in  
25 considerable detail, other versions are possible by

converting the aforementioned construction. Therefore,  
the scope of the invention shall not be limited by the  
specification specified above and the appended claims.